

HeatRisk - What's in HeatRisk?

The HeatRisk takes into consideration:

1. How significantly above normal the temperatures are at your location
2. The time of the year (for example, is this early season heat that you likely haven't become used to, or late season heat that you have become more used to)
3. The duration of unusual heat (for example, are temperatures overnight at levels that would lower heat stress, or will warm overnight low temperatures continue to add to heat stress into the next day)
4. If those temperatures are at levels that pose an elevated risk for heat complications, such as heat stress, based on peer reviewed science and heat-health thresholds supported by the Centers for Disease Control and Prevention (CDC) national data.

You may wonder where humidity is in this process. We know that humidity plays a significant role in making warm temperatures feel even more oppressive. Unfortunately, there are not an adequate number of weather stations across the country which report humidity values for a long enough period of time to be used directly in the HeatRisk approach. But there are many more stations that report temperature. Because of this, we use well known physical relationships of temperature to humidity to approximate the role of humid air. This is done by considering:

1. How unusually warm the overnight temperatures are (more humid air usually leads to warmer overnight low temperatures than are typical for an area)
2. How large the difference is between overnight lows and daytime high temperatures (the difference tends to be smaller the more humid the air is).

All of the factors listed above are used to create daily dynamic heat thresholds. These thresholds differ from one location to another, especially between cities and rural locations and in areas where elevation changes. As appropriate, these thresholds also change based on the day of year so that they are lower in the spring than in the summer, for example. The official NWS gridded forecast for high and low temperatures are then compared to these dynamic heat thresholds at each location, and the forecast temperatures are matched to their appropriate HeatRisk color/level. Information from both the overnight lows and daily highs are combined to create the final output: the experimental 24 hour HeatRisk. This information is available for the entire upcoming seven day period and provides additional information to base heat-related decisions on, not only for human health, but for many sectors that are affected by heat. The experimental HeatRisk product is just one more way the NWS is working toward ensuring that communities have the right information at the right time to be better prepared for upcoming heat events.